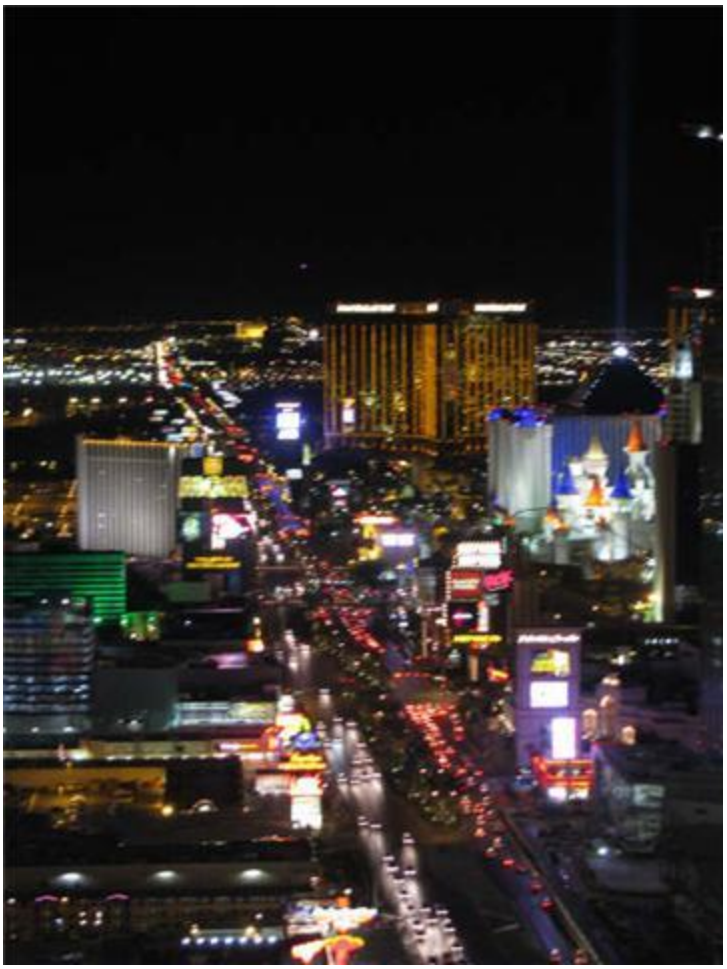
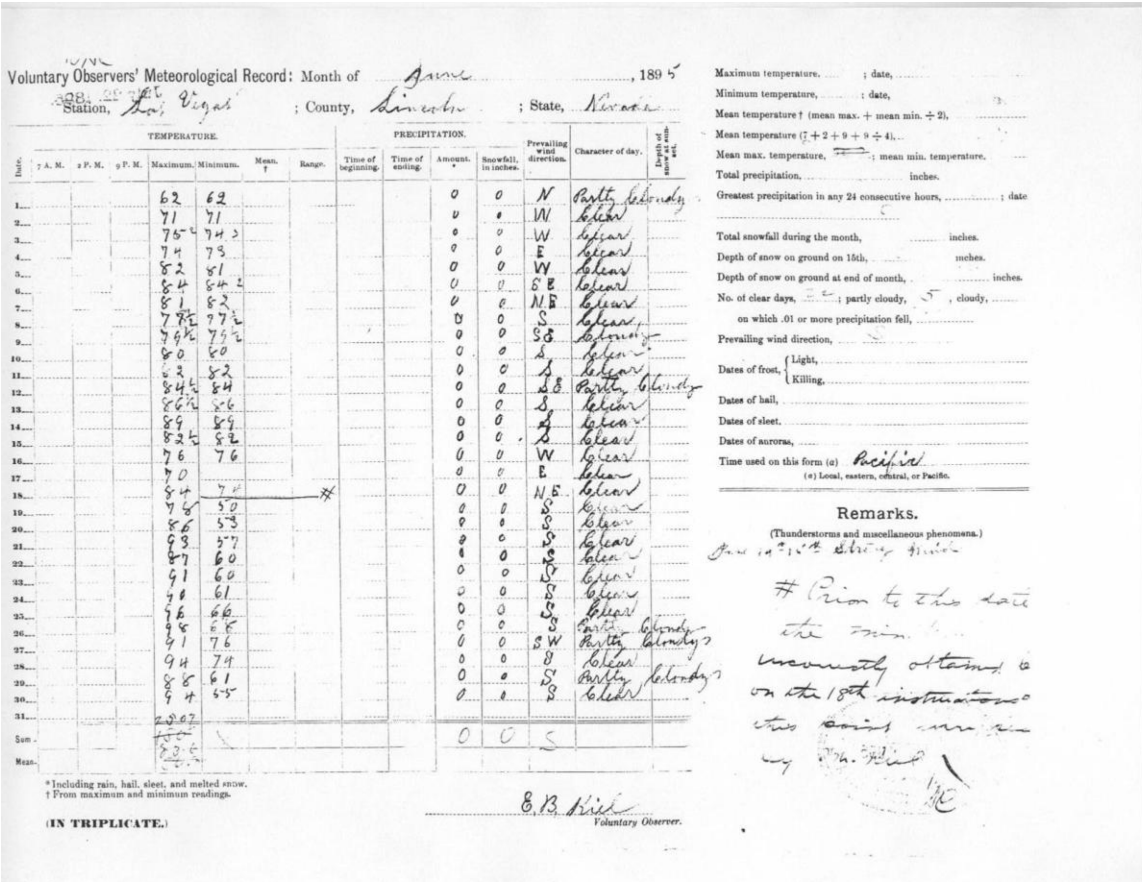


A History of the National Weather Service in Las Vegas, Nevada

Weather observations in the Las Vegas area can be traced back to before official incorporation of the City of Las Vegas took place in 1911. The earliest known record of weather observations in the Las Vegas area was kept by E.B. Kiel starting on June 1, 1895 at a location described as a "ranch about 3 miles north of Las Vegas". This location was near the intersection of Carey Avenue and Losee Road in what is today North Las Vegas. Temperature, precipitation and snowfall records were apparently taken at this location until October 1900, though local records and data on file with the National Climatic Data Center in Asheville only exist for daily observations taken through September 30, 1900. While precipitation and snowfall values from this period appear accurate, temperature values have a significant cool bias to them. A station history record for Las Vegas published by the U.S. Weather Bureau in January 1955 described the temperature data from this period as "apparently poor". The weather on June 1, 1895 was described as partly cloudy with a high temperature of 62 degrees – certainly atypical for Las Vegas for early June. A review of observations also shows the first 18 days of June 1895 had only a high temperature reported with a comment from the observer that minimum temperatures were incorrectly obtained. Between June and September of 1895, only 2 days had a triple digit high temperature record. Similar issues with temperatures

running much cooler compared to normal values in the later 1900s can be found in subsequent months of observations from this time period, thus supporting the remark that temperature data for this period was poor.



Voluntary Observers' Meteorological Record: Month of June, 1895

Station, Las Vegas; County, Lincoln; State, Nevada

Date	TEMPERATURE. 7 A.M.	2 P.M.	9 P.M.	Maximum.	Minimum.	Mean.†	Range.	PRECIPITATION. Time of beginning.	Time of ending.	Amount.*	Snowfall, in inches.	Prevailing wind direction.	Character of day.	Depth of snow at sunset.
1				62	62					0	0	N	Partly Cloudy	
2				71	71					0	0	W	Clear	
3				75	74					0	0	W	Clear	
4				74	73					0	0	E	Clear	
5				82	81					0	0	W	Clear	
6				84	84					0	0	SE	Clear	
7				81	82					0	0	NE	Clear	
8				78½	77½					0	0	S	Clear	
9				79½	75½					0	0	SE	Cloudy	
10				80	80					0	0	S	Clear	
11				82	82					0	0	S	Clear	
12				84½	84					0	0	SE	Partly Cloudy	
13				86½	86					0	0	S	Clear	
14				89	89					0	0	S	Clear	
15				82½	82					0	0	S	Clear	
16				76	76					0	0	W	Clear	
17				70						0	0	E	Clear	
18				84	74		#			0	0	NE	Clear	
19				78	50					0	0	S	Clear	
20				86	53					0	0	S	Clear	
21				93	57					0	0	S	Clear	
22				87	60					0	0	S	Clear	
23				91	60					0	0	S	Clear	
24				90	61					0	0	S	Clear	
25				96	66					0	0	S	Clear	
26				98	68					0	0	S	Partly Cloudy	
27				91	76					0	0	SW	Partly Cloudy	
28				94	74					0	0	S	Clear	
29				88	61					0	0	S	Partly Cloudy	
30				94	55					0	0	S	Clear	
31				2507										
Sum				[illegible]						0	0	S		
Mean				83.6										

*Including rain, hail, sleet, and melted snow.
† From maximum and minimum readings.

(IN TRIPLICATE.)

E.B. Kiel, Voluntary Observer.

Maximum temperature, ; date,
Minimum temperature, ; date,
Mean temperature † (mean max. + mean min. ÷ 2),
Mean temperature (7 + 2 + 9 + 9 ÷ 4),
Mean max. temperature, ; mean min. temperature,
Total precipitation, inches.
Greatest precipitation in any 24 consecutive hours, ; date
Total snowfall during the month, inches.
Depth of snow on ground on 15th, inches.
Depth of snow on ground at end of month, inches.
No. of clear days, 22; partly cloudy, 5, cloudy,
on which .01 or more precipitation fell,
Prevailing wind direction, S
Dates of frost, Light, Killing,
Dates of hail,
Dates of sleet,
Dates of auroras,
Time used on this form (a) Pacific
(a) Local, eastern, central, or Pacific.

Remarks.
(Thunderstorms and miscellaneous phenomena.)
June 14th 15th strong winds
Prior to this date the min. [illegible] incorrectly obtained & on the 18th instructions [illegible] this point [illegible] by [illegible]

The earliest known written record of weather observations in Las Vegas from June 1895.

In April 1901, a new observer was found in the Las Vegas area by the name of H.R. Stewart to record temperature and precipitation. These observations were taken for all 30 days of this month and then abruptly ceased for unknown reasons by May 1, 1901 but have temperature values that are accurate. By June 1901, the *Climate and Crops* publication from the U.S. Weather Bureau had removed the name of any observer from Las Vegas and the area would remain without any formal weather observer until August of 1907.

On May 15, 1905, 110 acres of land near what is today downtown was auctioned off by the Los Angeles and Salt Lake City Railroad and Montana Senator William Clark's San Pedro leading the establishment of Las Vegas. In 1907 a railroad agent named J.M. Heaton began taking weather observations at the main railroad station in what is today downtown Las Vegas. This is the first set of weather observations in the Las Vegas area with any sort of description taken of the instrument exposure and siting. Weather instruments consisted of a standard rain gauge and maximum and minimum

thermometers housed in a cotton region shelter at an elevation of 2033 feet with "good exposure". Observations here began on August 1, 1907 and ran through December 31, 1910. Although this location remained the official observing site through 1911 and most of 1912, the only data from this time period is a record of precipitation observed in May of 1912.

Railroad depot of the San Pedro, Los Angeles and Salt Lake Railroad in Las Vegas taken in 1906. This was the first location of weather observations in "downtown" Las Vegas. (Photo courtesy UNLV Special Collections).

With observations having becoming more sparse, it was apparent a new observer was needed for Las Vegas. C.P. Squires, who had moved to Las Vegas to take advantage of the opportunity of a then little desert town and eventually was a local entrepreneur, already had an interest in weather. In 1905, Mr. Squires purchased the *Las Vegas Age* newspaper for $2300. During either 1908 or 1909, Mr. Squires acquired weather instruments and installed them behind the *Las Vegas Age's* newspaper offices at 411 East Fremont Street (today this address is just across South 4th Street from the easternmost end of the Fremont Street Experience) and published them in his paper. On November 24, 1912 he became the "official" weather observer for Las Vegas taking his readings at 5 P.M. local time daily. These weather instruments were located in area of Las Vegas that then featured "uncultivated ground with very little grass" and consisted of a standard rain gauge and maximum and minimum thermometers housed in a cotton region shelter.

Mr. Squires had the longest stint of any of Las Vegas' volunteer weather observers. The weather station he established in the back of the *Las Vegas Age* remained in this location through the 1920s, although equipment made moves of a few feet in the area in order to account for any obstructions. This period marked the most stability in the era of volunteer weather observations in Las Vegas.

Mr. Squires takes a weather observation. Photo courtesy UNLV Special Collections.

On July 1, 1928 weather observations began at Western Air Express Airport to support the growing needs of the aviation community in Las Vegas. Plans for an airport in Las Vegas date back to 1925, when the federal government needed a stop between Salt Lake City and Los Angeles to connect it with the national airmail route. A flat plot of land had existed near the city for years as a landing strip known as Anderson Field and later Rockwell Field. This plot of land was located just east of what is today the Sahara Casino near the east side of Paradise Road. In 1929 increased competition and the potential risk of loosing the mail landing spot to communities in southern Utah lead to a new airport being constructed. A plot of land, now Nellis Air Force Base, located eight miles northeast of downtown Las Vegas was selected for the new field. In 1930, the new airfield opened and Rockwell field closed. On August 15, 1935 weather observing operations moved to the Water Tower Building and an official Weather Bureau office was established. Clarence V. "Skippy" Lang was the first Official-In-Charge and served in this position for 13 years.

While weather observations moved to and were taken the new airfield, Mr. Squires continued to take his observations in downtown Las Vegas logging high and low temperatures and 24 hour totals of precipitation and snowfall. In October 1936, an associate meteorologist for the U.S. Weather Bureau visited Las Vegas to perform a routine inspection of Mr. Squires' weather equipment. Mr. Squires was now 75 years old and was "aging very apparently" according to the report, however was still active and desired to continue as the city's weather observer. Given the aging condition of Mr. Squires' and the concern for a need for weather observations in Las Vegas, a recommendation was made to keep a record of weather observations at Western Air

Express Field (the airport). Thus, one set of records would be kept at the airport while Mr. Squires kept a second set of records at his location downtown. On January 1, 1937 the U.S. Weather Bureau began to keep a permanent weather record at Western Air Express Field with an office located in the Water Tower building. These records eventually consisted of temperature, precipitation (including snow), wind, humidity, pressure and sky cover. Temperatures were recorded by thermometers installed in a cotton region shelter located 5 feet above the ground with maximum and minimum thermometers being installed on December 26, 1936. Precipitation measurements began on the same date with an eight inch standard rain gauge. Pilot balloon launches (pibals) also took place here starting initially with three runs day and on July 1, 1937 was increased to four runs a day. Pibal preparations were done in a balloon inflation house 12 feet west of the office.

Mr. Squires continued taking observations at 411 East Fremont Street through the late 1930s. On July 20, 1939, a recording rain gauge was installed here and remained in place until December 21, 1943. By April of 1944 Mr. Squires was now 79 years old and the oldest cooperative observer in the state of Nevada. In November 1945, Mr. Squires' station moved a half mile south to his house in a residential neighborhood at 408 South 7th Street. Mr. Squires continued to take observations here until August 8, 1956 likely due to his age. The "downtown" weather station was officially closed on December 31, 1956 and was never replaced as the U.S. Weather Bureau had now began taking its' own set of records. Mr. Squires eventually died in 1958 at the age of 93.

Mr. Squires and his wife at their home at 408 South 7th Street in Las Vegas. Photo courtesy UNLV Special Collections.

By the late 1930s, World War II and the desire to have a military presence in Las Vegas led to the establishment of a gunnery school at the airport. Eventually, both civilian and military aircraft used the airfield with the civilian part being renamed McCarran Field in 1941 and an Air Force Base operating on the other half. The U.S. Weather Bureau continued to take observations here in the Water Tower Building until August 1, 1942 when it moved 600 feet to the north-northwest to the west side of the Administration Building. Several changes also took place in the early 1940s with equipment. On August 18, 1942 a tipping bucket rain gauge was installed. A weighing rain gauge was also used from November 8, 1940 through January 25, 1948. An anemometer and wind vane were located atop a tower initially on the Administration Building, then at the Water Tower Building for about a year from June 21, 1941 to July 31, 1942 before returning back to the roof of the Administration Building. Records of barometric pressure, humidity and sunshine started in January 1941. On September 25, 1945 a rawisonde program began at the office with a once-a-day launch at 7 PM. A second daily rawisonde launch at 7 AM started on April 7, 1946.

The early days of the Weather Bureau at what is now Nellis Air Force Base. The above photo was taken on March 16, 1942 and shows the balloon inflation shed (at left, noted by the 1). Locations of two rain gauges are noted by the numbers 2 and 3.

This photo was also taken on March 16, 1942 and shows wind instruments mounted on the building in the center and a cotton region shelter to the left of the cars.

The U.S. Weather Bureau Office at the new McCarran Airport Administration Building in September 1949. The office was located in the corner of the building marked by the number 1.

In 1945, World War II ended and the gunnery school closed in September of that year. The Air Force Base was officially inactivated in January 1947. The U.S. Air Force expressed interest in re-opening the base, but Las Vegas also needed a place for civilian aircraft. Alamo Field, a private airport, already existed on what is now Las Vegas Boulevard since 1942 and after a series of reviews by Clark County was purchased to be the new community civilian airport.

On December 18, 1948 the Weather Bureau moved its' offices south to the site of Alamo Field which was now the new McCarran Field and set up operations in the Administration Building. This was 14 miles southwest of the previous location and also located at 2162 feet above sea level, an increase in elevation from the site in the northeast part of the valley which was at 1876 to 1879 feet above sea level. On June 5, 1964 the Weather Bureau and Federal Aviation Administration (FAA) formally dedicated a joint Weather Bureau-FAA briefing facility. An increase in air traffic due largely to the casino industry in Las Vegas resulted in the airport becoming McCarran International Airport in 1968.

The new office also featured a balloon inflation room (noted by the number 2) and a variety of weather instruments. Photo taken in late 1949.

Basic observing equipment at the new McCarran Airport location initially consisted of thermometers housed in a cotton region shelter on the grounds of the airport near the

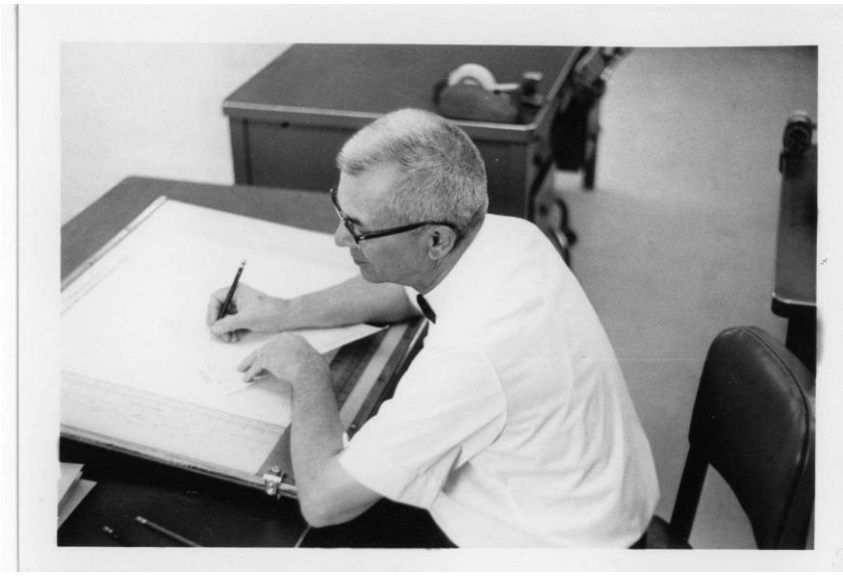
Administration Building, an eight inch rain gauge and tipping bucket rain gauge, a psychrometer, a hygrothermometer, an anemometer and wind vane.

At the new McCarran Airport, pilot balloon launches were also accompanied by the release of rawinsondes at the weather office, though on September 13, 1951 were cut back to just two launches a day at 1 AM and 1 PM with the remaining two launches at 7 AM and 7 PM performed at Nellis Air Force Base by personnel there. The two balloon shelters were located in close proximity on the grounds of the airport. In the mid 1960s, Weather Bureau officials decided to consolidate operations with the Nevada Test site which had already begun its own rawinsonde launches at Yucca Flat in the 1950s. Rawinsonde launches continued at McCarran until October 9, 1966 when the program was discontinued following the 00Z October 10, 1966 launch. Upper air observations at the Nevada Test Site continued at Yucca Flat through mid-May of 1978, when observations then moved south to Desert Rock. Although upper air observations ceased at McCarran, pilot balloon observations continued on but would shortly be phased out. On November 30, 1966 the last 18Z pilot balloon launch took place with the program discontinued completely on January 1, 1971.

Main operations area of the U.S. Weather Bureau Las Vegas in 1957.

Instrument read-out inside the Las Vegas office in 1957.

Joint FAA-Weather Bureau Briefing Facility dedication at McCarran on June 5, 1964.



An employee does a hand analysis of weather maps at the Las Vegas U.S. Weather Bureau Office in the 1960s.

On October 3, 1970, the U.S. Weather Bureau was renamed the National Weather Service. The National Weather Service continued to operate at the Administration Building at McCarran International Airport until 10:05 AM PST on February 26, 1976 when it moved to a trailer at the south end of an airport concourse. This move was only temporary as the office was re-located to a new location on the mezzanine level of the Hughes Charter Terminal Building on September 22, 1976. This new location was at the north end of the airport concourse. Just days earlier on September 6, 1976, the office got its first Electronic Technician (ET) position.

Inside of the National Weather Service office at McCarran Airport in December 1976 looking towards the Official-In-Charge's office.

A major improvement took place with the installation of the first Weather Service radar, a WSR-74C, in the area in 1976. This radar was first activated at Noon on December 17, 1976 and just 2 days later detected its first precipitation echoes. These echoes were confirmed by reports from pilots and on the ground. On January 28, 1977 the WSR-74C was formally commissioned.

By the 1980s, plans for a nationwide modernization of the National Weather Service began. At this time it was decided that the Las Vegas office, which had observing, climatological and short fused warning responsibility for all of Clark, Lincoln, Nye and Esmeralda Counties in Nevada would be spun-up into a full-fledged forecast and warning office with responsibilities extended to portions of interior southeast California and northwest Arizona. Under this plan a new office would be constructed, a WSR-88 D radar would be commissioned and weather observations at McCarran would be primarily automated. In January of 1994 construction began on the new office.

Plans to begin spinning up operations began by the mid 1990s at the airport office. Five forecasters and two interns joined the current administrative, meteorological technician and electronic technician staff. They were later joined by a Warning Coordination Meteorologist and a Science Operations Officer who would help to oversee additional program and administrative functions of the office as well as work in operations.

The new National Weather Service Forecast Office in Las Vegas on Dean Martin Drive under construction in 1994 (above). The office dedication ceremony was held on April 13, 1995 (below).

In April of 1995, a brand new office opened at 7851 South Industrial Road (now Dean Martin Drive) just north of Blue Diamond Road with a formal dedication ceremony held on Thursday, April 13th. This location was about two miles to the southwest of McCarran International Airport. At this time, forecasting and administrative operations moved to the new office, however a small portion of the staff stayed behind at McCarran through

August of 1995 to continue taking observations until an Automated Surface Observing System (ASOS) was commissioned to take weather observations. On September 1, 1995, the McCarran International Airport ASOS was finally commissioned and became the primary means for observing weather at the airport. However, due to the high volume of travelers who use McCarran, a staff of contract weather observers augments the observations from ASOS to include additional information on parameters such as sky cover and distant weather. While McCarran remains the primary climate site for Las Vegas, a cooperative weather station was established in 1996 at the new office with a cotton region shelter equipped with thermometers, a maximum-minimum digital thermometer and an eight inch standard rain gauge. At this time, the new office also became the primary location for recording snowfall in Las Vegas.

The ASOS at McCarran International Airport.

The new modernized Las Vegas office gradually began to issue its' own suite of forecast products initially through AFOS. Forecast and warning responsibility by November 1995 included all 4 the southernmost counties in Nevada (Clark, Lincoln, Nye and Esmeralda) the office had been serving for years but also now included new areas in Arizona and California. In Arizona, Mohave County became a part of the forecast area including for the first time the Arizona portion of the Lake Mead National Recreation Area. A small National Weather Service Office located at the Bishop, California airport closed in October 1995 resulting in the Las Vegas office taking over forecast and warning

responsibility for Inyo County, California. San Bernardino County, California was split up amongst two offices initially with WFO Las Vegas taking over most of the desert portion of the county and WFO San Diego taking over responsibility for the more populated southwestern corner of the county. At the time the area of responsibility was well over 70,000 square miles making it one of the three largest County Warning and Forecast areas in the continental United States, a status the office still holds today. On January 3, 1996 the first set of aviation forecast products was issued by the Las Vegas office. In 1998 the office saw additional changes as forecasting technology improved greatly with the addition of AWIPS and staffing increased with the addition of lead forecaster positions.

In addition to advances in forecasting technology at the office, a new WSR-88 D radar was installed southeast of Las Vegas atop Nelson Peak in 1994 and activated in 1995. This radar replaced the old WSR-74 C radar used at the old airport office. The WSR-74C was decommissioned on September 1, 1995 and the WSR-88D was commissioned on September 13, 1995.

During the mid 2000s, the area of responsibility served by the Las Vegas office changed in order to better serve the needs of the area. The northern portion of Nye County was split off from the rest of the county and transferred to WFO Elko in 2003, including a TAF issued for the Tonopah Airport. Other changes took place in southeast California shortly after. A portion of San Bernardino County located within the park boundaries of Joshua Tree National Park was transferred to WFO Phoenix. And lastly a series of changes took place further west with WFO Las Vegas expanding the portion of the Morongo Basin it served west to Yucca Valley and also adjusting some areas of desert land along the border with WFOs Oxnard and San Diego.

The National Weather Service in Las Vegas has come a long way from its early beginnings in southern Nevada. Much like the City of Las Vegas has grown over the years, continued technological changes and meteorological advances will allow this office to continue to serve our customers better.

Thanks is extended to the staff through the years at NWS Las Vegas who left behind written records and gave verbal recollections to piece together the history of this station. A special thank is extended to Rosalin Cianflocco for scanning all of the images above. To date over 115 individuals have served at this office.

Front of the National Weather Service Office on Dean Martin Drive.